

IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the Application:

1. - 12. (Cancelled)

13. (Currently Amended) A method for manufacturing an area array package comprising:

coupling a grid array of primary electrical contacts to a coupling surface of a substrate within a central portion defined by the substrate, the grid array of primary electrical contacts configured to carry at least data signals between the area array package and a circuit board; [[and]]

forming the primary electrical contacts of the grid array as a plurality of primary solder balls, each primary solder ball of the grid array defining a first diameter;

coupling a series of secondary electrical contacts to the coupling surface of the substrate within a peripheral area defined by the coupling surface, the series of secondary electrical contacts configured to carry power signals between the area array package and the circuit board, the series of secondary electrical contacts separate from the grid array[[.]]; and

forming the series of secondary electrical contacts as a plurality of secondary solder balls, each secondary solder ball of the series defining a second diameter, the second diameter defined by each of the secondary solder balls being greater than the first diameter defined by each of the primary solder balls.

14. (Cancelled)

15. (Currently Amended) The method of claim ~~[[14]]~~ 13 wherein the step of forming the series of secondary electrical contacts comprises:

placing at least two solder balls on a contact pad oriented within the peripheral area defined by the coupling surface, each solder ball defining a first diameter;

heating the at least two solder balls to cause the solder to undergo reflow;

forming a secondary solder ball on the contact pad, secondary solder ball ~~of the~~ defining a second diameter, the second diameter defined by the secondary solder ball being greater than the first diameter defined by each of the primary solder balls.

16. (Original) The method of claim 13 comprising coupling at least one power regulation device to the substrate and in electrical communication with the series of secondary electrical contacts.

17. (New) The method of claim 13 comprising coupling the plurality of secondary solder balls to the substrate at a pitch of at least approximately 5 mm.

18. (New) The method of claim 13 wherein the substrate defines a length of at least approximately 60 mm and a width of at least approximately 60 mm.

19. (New) The method of claim 13 wherein coupling the grid array comprises coupling the grid array of primary electrical contacts to the coupling surface of a substrate defining at least one power plane, at least one ground plane, and at least one plated through hole in communication with the at least one power plane and the at least one ground plane, the substrate further comprising a contact pad in electrical communication with the at least one plated through hole and configured to electrically couple with a secondary solder ball.

20. (New) The method of claim 13 wherein the grid array of primary solder balls is configured in an array pattern of 50 columns having 50 primary solder balls per column.

21. (New) A method for manufacturing an area array package comprising:
coupling a plurality of primary solder balls to a first set of contact pads disposed on a first surface of a substrate, the primary solder balls configured to carry at least data signals between the area array package and a circuit board;
coupling a plurality of secondary solder balls to a second set of contact pads disposed on the first surface of the substrate, the second set of contact pads in electrical communication with at least one conductive plane of the substrate, the secondary solder balls configured to carry power signals between the area array package and the circuit board, each of the secondary solder balls having a diameter greater than a diameter of each of the primary solder balls;
and

electrically coupling a die to a second surface of the substrate opposing the first surface, the die in electrical communication with the first set of contact pads and the second set of contact pads.

22. (New) The method of claim 21 comprising coupling at least one power regulation device to the substrate and in electrical communication with the second set of contact pads.

23. (New) The method of claim 21 comprising coupling the plurality of secondary solder balls to the substrate at a pitch of at least approximately 5 mm.

24. (New) The method of claim 21 wherein the primary solder balls are arranged in a grid array having an array pattern of 50 columns with 50 primary solder balls per column.

25. (New) The method of claim 24 wherein the series of secondary electrical contacts are separate from the grid array.

26. (New) The method of claim 21 wherein coupling a plurality of secondary solder balls to a second set of contact pads comprises coupling a plurality of secondary solder balls to a second set of contact pads disposed on the first surface of the substrate, at least one of the second set of contact pads in electrical communication with at least one power plane of the substrate.

27. (New) The method of claim 21 wherein coupling a plurality of secondary solder balls to a second set of contact pads comprises coupling a plurality of secondary solder balls to a second set of contact pads disposed on the first surface of the substrate, at least one of the second set of contact pads in electrical communication with at least one ground plane of the substrate.

28. (New) A method for manufacturing an area array package comprising:
coupling a plurality of primary solder balls to a first set of contact pads disposed on a first surface of a substrate, the primary solder balls configured to carry at least data signals between the area array package and a circuit board, and the primary solder balls arranged in a grid array having an array pattern of 50 columns with 50 primary solder balls per column;
coupling a plurality of secondary solder balls to a second set of contact pads disposed on the first surface of the substrate at a pitch of at least approximately 5 mm, the second set of contact pads in electrical communication with at least one conductive plane of the substrate, the secondary solder balls configured to carry power signals between the area array package and the circuit board, each of the secondary solder balls having a diameter greater than a diameter of each of the primary solder balls;

electrically coupling a die to a second surface of the substrate opposing the first surface, the die in electrical communication with the first set of contact pads and the second set of contact pads; and

coupling at least one power regulation device to the substrate and in electrical communication with the second set of contact pads.